



*Office of the Deputy Under Secretary of Defense
(Installations and Environment)*

**Report of the
Plant Replacement Value
(PRV)
Panel**

August 2001 – May 2003



Table of Contents

Table of Contents	i
Executive Summary	iii
Findings	1
1. Overview	1
1.1 Objective	1
1.2 Composition of the Panel.....	1
1.3 Methodology	1
1.4 Meetings of the PRV Panel.....	2
2. Purposes and Attributes of PRV	2
3. Components of Construction	3
3.1 Components of Construction to be included in PRV	3
• Primary Facility Construction.....	3
• Component Equipment.....	4
• Seismic Construction Requirements:	4
3.2 Components of Construction not to be included in PRV.....	4
• Land Acquisition.....	4
• Site Preparation.....	4
• Earthwork	5
• Landscaping	5
• Post-Construction Equipment	5
• Supporting Facilities Construction.....	5
• Associated Facilities Construction.....	6
• Displacement and Temporary Structures.	6
4. Cost Components and Factors for Estimating Construction Costs	6
4.1 Costs and Factors Necessary to Calculate PRV.....	6
• Planning and Design.....	7
• Area Cost Factor.....	8
• Historical Requirements Adjustment	8
• Antiterrorism/Force Protection	9
• Construction Management (SIOH)	10
• Contingency	11
4.2 Costs and Factors Not Pertinent to PRV Calculations	11
• Size Adjustment Factor	11
• Inflation Adjustment	12
• Technological Updating Adjustment	12
• Design Contingency Allowance	12
• Risk Adjustment	12
• Site Sensitivity Adjustment	13
• Technical Specialty Competition Adjustment.....	13
5. Additional Considerations for Health Care Facilities	13
6. Definition and Formula for Calculating PRV	14

6.1	Definition of PRV	14
6.2	Formula for Calculating PRV	15
7.	Impact of Design Actions Contained within Select DoD Construction Cost Factors	15
8.	Changes to the FAC Structure and Category Code Mappings	16
8.1	FY 2002 FAC Changes	16
8.2	FY 2002 CATCODE Reassignments	17
8.3	FY 2002 Revised Category Codes/Real Property Inventory.	19
8.4	FY 2003 FAC Changes	19
8.5	FY 2003 CATCODE Reassignments	23
8.6	Air Force Category Code and Cost Factor Review	24
9.	Pending and Implementing Actions	24
Appendix A: Composition of the PRV Panel		26
Appendix B: References		28
Appendix C: Design Component Contained in DoD Construction Cost Factors		29
Appendix D: Planning and Design Study to Support Design Costs for Health Affairs Facilities		33
Appendix E: Table of FAC and CATCODE Mapping Changes.....		35
Appendix F: Actions from the Air Force Category Code and Cost Factor Review		46

Executive Summary

The Defense Strategic Plan Working Group, under the leadership of the Installations Policy Board, chartered a panel to improve upon the use and credibility of the DoD Plant Replacement Value (PRV) metric. The panel was comprised of representatives from OSD, the Military Services, and the Tricare Management Agency. This review was conducted from August 2001 to August 2002.

PRV is used to describe a physical plant made up of various types of facilities often measured in different incompatible units (e.g. square feet, gallons per minute, and kilovolts) and to conduct macro level analyses associated with costs to replace these facilities. Because the Services and Agencies were using different inputs and factors to calculate their reported Plant Replacement Value, the PRV Panel was chartered to address the growing concern for the need for standardized PRV calculations. Since PRV is a vital element of the Facilities Recapitalization Metric (FRM), the results of the PRV panel would be critical for increasing the accuracy and credibility of FRM.

The goals of the panel were to validate and revise, where necessary, the definition of PRV; document the inputs to the PRV model including inventory, cost factor, area cost, and all design and overhead components; validate the use of DOD construction cost factors for PRV; and revise cost factors and components as needed to meet the revised definition.

In analyzing PRV, all elements of a construction project were reviewed and a determination made by the panel as to their relevance for calculating PRV. The following table summarizes this review.

Component of Construction	Pertinent to PRV	Summary of basis for inclusion/exclusion
Land Acquisition	No	Land acquisition is the acquiring of land necessary for construction. This may include land purchase, grant, or leasing. Land acquisition is not included, because PRV is defined as an existing facility at an existing location. The land on which the existing facility is located would already be under the control of the Government, therefore no additional land would need to be acquired to construct the notional replacement facility.
Site Preparation	No	Site preparation is the clearing and grubbing, demolition, and layout of a construction site. This includes the removal of surface vegetation and debris (clearing), such as the cutting down of trees and brush and the removal of subsurface vegetation (grubbing), such as the digging out of roots and stumps. Site preparation costs are not included in PRV because the site would already have been prepared in the process of constructing the original facility.

Component of Construction	Pertinent to PRV	Summary of basis for inclusion/exclusion
Earthwork	No	Earthwork entails those operations connected with the movement of earth for construction purposes. Examples of earthwork are the excavation of a space for the foundation of a building, or the cut and fill of material to create the sub-grade for a pavement. Earthwork is not included in PRV because all excavation or cut and fill should have been accomplished in the process of constructing the original facility.
Primary Facility Construction	Yes	Primary Facility Construction includes all construction activities required to complete a specific facility, from the point when a prepared construction site exists and earthwork is finished, through the completion of the finished facility. Major components of primary facility construction are the placement of the foundation, the construction of substructure and superstructure, the backfilling of open excavations, and providing utility connections within the immediate area of the facility (within the five-foot line surrounding the facility). Although the installation of equipment is often considered part of facility construction, this has been separated here to better distinguish between component equipment and post-construction equipment.
Component Equipment	Yes	Component equipment is that equipment which is incorporated into the construction of a facility and is necessary for the function of the facility. This equipment is permanent in nature and considered part of the facility. Examples of component equipment would be central heating and cooling equipment in buildings, and overhead cranes in maintenance and production facilities.
Post Construction Equipment	No	Post-construction equipment is that equipment placed into a facility after construction and used by occupants to assist them in their work. This equipment tends to be temporary in nature and is normally the property of the using organization rather than a part of the facility. Examples of post-construction equipment would be window air conditioners, office machines and furniture, and portable maintenance equipment. Post construction equipment is not applicable since this equipment is not defined or accounted for as real property.
Landscaping	No	Landscaping is the reshaping of the ground surface and planting of vegetation to create a pleasing surrounding area for a facility. Landscaping is not included in PRV because it involves a more aesthetic aspect of construction rather than an integral component of the facility. In most cases, it would also involve costs beyond the five-foot line of the original facility.
Supporting Facilities Construction	No	This area encompasses the construction of those other facilities required for the proper functioning of the primary facility, but not considered as part of that facility. For example, if a unit barracks is constructed, the extension of utility lines and access roads to the new barracks are required for the barracks to be functional as housing for troops, so the new utility lines and road would be supporting facilities to the barracks. Supporting facilities are not part of the primary facility; therefore, their costs are not included in the primary facility's PRV. A supporting facility will have a PRV of its own.

Component of Construction	Pertinent to PRV	Summary of basis for inclusion/exclusion
Associated Facilities Construction	No	<p>This component describes the construction of those other facilities associated with, but not required for the proper functioning of the primary facility and are not considered as part of that facility. For example, if a unit barracks is constructed in conjunction with the unit headquarters building and a dining facility, the headquarters and dining facility may be associated with the barracks, but are not required for the barracks to function as housing for troops. Therefore, the headquarters and dining facilities would be associated facilities to the barracks. Like supporting facilities, associated facilities are not part of the primary facility; therefore, their costs are not included in the primary facility's PRV. An associated facility will have a PRV of its own.</p>

Special attention was devoted to the contributing factors of specialized areas and subsets of facilities, as well as in-depth analysis of the planning and design actions associated with PRV. This review is summarized below.

Factor/Adjustment	Include in PRV calculation	Summarized basis for inclusion/exclusion
Size Adjustment Factor	No	The size adjustment factor is based on data analysis that shows a correlation exists between project size and construction cost. Unit construction costs generally are lower for larger projects due to greater opportunities for material quantity discounts and for spreading mobilization, demobilization and general overhead costs over a greater number of units. This factor was not included since all cost factors are based on a common reference size and the effects would be balanced across an inventory of facilities.
Area Cost Factor	Yes	Area cost factors are developed based on the local conditions affecting construction costs. Factors considered include weather, seismic, climatic (frost zone, wind loads, and HVAC), labor availability, contractor overhead and profit, life support and mobilization, and labor productivity versus the U.S. standard.
Inflation	No	The inflation adjustment is used to determine project cost escalation due to inflationary factors based on the assumed midpoint construction time relative to today's cost factors. The inflation adjustment would not be used in PRV calculations since it is calculated in current year dollars. If necessary to express PRV in other than the current year, the value would be inflated after calculation.
Technological Updating Adjustment	No	This adjustment provides for an additional allowance for specialized facilities where technological advances in equipment and operation techniques are developed rapidly, causing obsolescence to occur before design and construction can be completed. Since this factor is used to forecast advances, its use is not appropriate for PRV, which is based on current standards.

Factor/Adjustment	Include in PRV calculation	Summarized basis for inclusion/exclusion
Design Contingency	No	The design contingency allowance exists to cover component items that cannot be analyzed or evaluated at the time a facility cost estimate is prepared; however, these components are susceptible to cost evaluation as planning and design progresses. It diminishes as design progresses from concept through design completion. This allowance is predominantly a placeholder in project execution and would not be applicable to PRV.
Historical Requirements Adjustment	Yes	This adjustment provides an allowance for unique architectural features to comply with facilities to be built at locations listed in the National Register of Historical Landmarks. The cost impact of historic facilities or facilities located within historic districts are evident in the (1) requirement for unique architectural features to be preserved or duplicated during restoration; (2) required masking and screening during modernization, especially when updating standards for HVAC, fire suppression, force protection, elevators, and handicapped accessibility; (3) additional architectural features to preserve the architectural theme during new construction in historic districts; and (4) impact of utilities and infrastructure replacement within historic districts. Using this factor for increased costs associated with historic facilities and facilities within historic districts was briefed to the Principal Assistant Deputy Under Secretary of Defense (I&E), who concurred in the recommendations of the PRV Panel.
Risk Adjustment	No	This cost adjustment is provided for highly complex facilities involving sophisticated and/or innovative technology. The level of risk varies on different facilities and is determined using existing commercial software applications. This adjustment is only required in unique circumstances and is not valid across an inventory of facilities.
Site Sensitivity Adjustment	No	The site sensitivity adjustment is reserved for those special cases where the unique nature of both the site and the project in relation to one another will cause a significant impact on cost. Majority of factors influencing its use are already included in area cost factor. Issue of access to secure sites excluded due to security classification issues only applies to a small percentage of the inventory.
Technical Specialty Competition Adjustment	No	This adjustment is reserved for those special cases where the competition for the services of certain specialty labor or trades is apparent. This may occur due to a decrease in the number of these trades in the available workforce or an increase in requirements for their services. Majority of factors influencing its use are also included in area cost factor.
Planning and Design	Yes	Planning and design is the process of developing the general layout of facilities (planning) and the detailed structural concept (design) of a facility. Planning is the layout of facilities, spaces within facilities, and facilities in open spaces in order to develop the general scheme of a facility or group of facilities.

Factor/Adjustment	Include in PRV calculation	Summarized basis for inclusion/exclusion
Anti-terrorism and Force Protection	Not Separately	Recent OSD policy mandated minimum construction requirements be incorporated into all inhabited new construction and major renovations. Costs for minimum standards included in construction cost factor as AT/FP policy is defined and costs are determined.
SIOH	Yes	Construction management consists of the costs necessary to ensure a project is completed as designed, to specifications, and on schedule. This includes supervision of the overall project, inspection of construction, and management overhead. Together this supervision, inspection, and overhead are referred to as SIOH.
Contingency	Yes	Contingency is the additional allocation of funds intended to cover unforeseen conditions and/or occurrences that may be encountered during construction and that were not susceptible from the data at hand during engineering and design. Areas for which a contingency factor is usually reserved include unforeseeable relocations, unforeseeable foundation conditions, and encountering utility lines in unforeseen locations.

The Tricare Management Agency (TMA) requested that the process of planning and design for health care facilities receive additional attention. Current policy requires twenty-two studies during the design phase of a construction project for a health care facility, many of which are unique to only this type of facility. Additionally, the number of submittals, levels of review, and design conferences are higher for medical projects in comparison to non-medical construction. This increased design effort requires a higher investment of planning and design funds. Historically, planning and design actions for health care facilities averaged over 13 percent of the primary facility cost.

After the panel determined the construction components pertinent to PRV and the available cost estimating factors, a complete definition of PRV was developed.

Plant Replacement Value (PRV) is the cost, in current year dollars, to design and construct a notional facility to replace an existing facility at the same location. The notional replacement facility will perform the same functions as the existing facility, within the same capacity as calculated in the assigned Facility Analysis Code (FAC) primary unit of measure. The notional replacement facility will also be constructed to current standards of materials and design consistent with DoD policies. PRV is a macro value, valid across an inventory of facilities, and does not represent the actual construction cost to replace a single existing facility. Additionally, PRV is only associated with existing real property assets and does not address current or new mission deficits or capacity shortfalls. However, the value of PRV can be projected into the future using an asset quantity, other formula elements, and the appropriate inflation adjustment.

PRV for a single facility does not include the costs for land acquisition, site preparation, earthwork, landscaping, supporting facilities, associated facilities, or studies/surveys outside normal planning and design for

construction. Also not included are items referred to as post construction equipment or personal property such as computer systems, personal property, and furniture. PRV does not include costs due to site-specific conditions, except those conditions used to formulate the area cost factor, such as congested, inadequate, or secure sites. Additionally, it does not include costs not associated to recapitalization or replacement construction costs such as demolition or environmental mitigation/remediation.

The formula for calculating PRV based on the above definition is:

PRV	= Assets * CCF * ACF * HRA * P&D * SIOH * CONT
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Factor	Definition	Value
Assets	Quantity of facilities in the assigned FAC primary unit of measure	Obtained from Service RPI
CCF	Construction cost factor	Published in the DoD Cost Factor Handbook
ACF	Area Cost Factor	Published annually by ODUSD (I&E)
HRA	Historical Requirements Adjustment	Value of 1.05 (5%) for historic facilities or facilities within historic districts
P&D	Planning and Design	Linked to OSD (C) PBD Guidance 1.09 (9%) for all facilities 1.13 (13%) for select health care facilities
SIOH	Supervision, Inspection, and Overhead	1.06 (6%) for CONUS facilities 1.065 (6.5%) for OCONUS facilities
CONT	Contingency	1.05 (5%) for all facilities

The PRV Panel noted that some of the DoD construction cost factors includes planning and design and others do not include planning and design. The cost factors containing a design component are typically derived from commercial sources, such as Means or Marshall and Swift. Cost factors derived from the Tri-Service Committee on Cost Engineering and other DoD sources do not contain a design component. To preclude any “double-counting,” all of the cost factors containing a design component were identified and the amount of the design component was quantified. Sixty cost factors were found to have a design component, which will require these factors to be reduced by their design component upon implementation of the revised formula for PRV.

The PRV Panel also reviewed the facilities classification system and identified changes to the FAC and Category Code relationships. These changes were made to better meet the goals of the FAC system and allow for increased accuracy in various facilities management models. In this effort, 254 changes were reviewed and the group approved 200. The following areas were included:

- Piers and Wharfs
- Fire and Fire Extinguishing Systems
- Aircraft Pads
- Operating Fuel Storage
- Utilities
- Training Ranges
- Energy Management Systems
- Army Maintenance Facilities
- Transient and Recreational Lodging

A detailed analysis was also conducted for approximately 35 Air Force category codes and cost factors. This review resulted in 15 refinements and improvements in the Facilities Classification System, the DoD cost factors, and the draft revision to the DoDI 4165.14.

Consensus was reached with all members of the panel on implementing the contents of this report. Since PRV is a vital element of the Facilities Recapitalization Metric (FRM), the results of the PRV panel will add to the accuracy and credibility of FRM, as well as other current and future facilities management models. PRV may be calculated using this revised definition and formula as early as the POM 05 budget process.

Findings

1. Overview

1.1 Objective

The objective of the Plant Replacement Value (PRV) Panel was to standardize the definition, use, and calculation of PRV within the Department of Defense (DoD). A secondary objective was to ensure the Facilities Classification System and Facility Analysis Categories were properly organized to effectively support the revised definition and calculation of PRV.

1.2 Composition of the Panel

The Office of the Deputy Under Secretary of Defense for Installations and Environment established the PRV Panel. The group consisted of representatives of the ODUSD, the Services, and the Defense Agencies. The members of the PRV Panel are contained in Appendix A.

1.3 Methodology

The following issues were discussed by the PRV Panel:

- Describe the purposes and expected attributes of PRV.
- Analyze the components of construction and determine those components that are pertinent to PRV.
- Review and expand on the current definition of PRV.
- Analyze cost components and available factors for estimating construction. Select those costs and factors required to calculate PRV.
- Develop a final definition of PRV and the formula for calculating PRV.
- Analyze the organization of the Facilities Classification System and Facility Analysis Categories. Identify necessary changes to allow for an accurate calculation of PRV.

This approach was conducted via a series of seven full panel meetings between August 2001 and August 2002. In addition, smaller specialized meetings were conducted to address specific issues. Consensus among all the members of the PRV Panel was obtained before finalizing the issues and results.

1.4 Meetings of the PRV Panel

The PRV Panel formally met on the following dates:

August 22, 2001	October 9, 2001
October 31, 2001	December 4, 2001
February 19, 2002	March 26, 2002
July 2, 2002	

2. Purposes and Attributes of PRV

The PRV Panel conducted an initial brainstorming session to establish the uses and purposes of PRV and the expected attributes of PRV. The group enumerated the following uses and purposes of PRV:

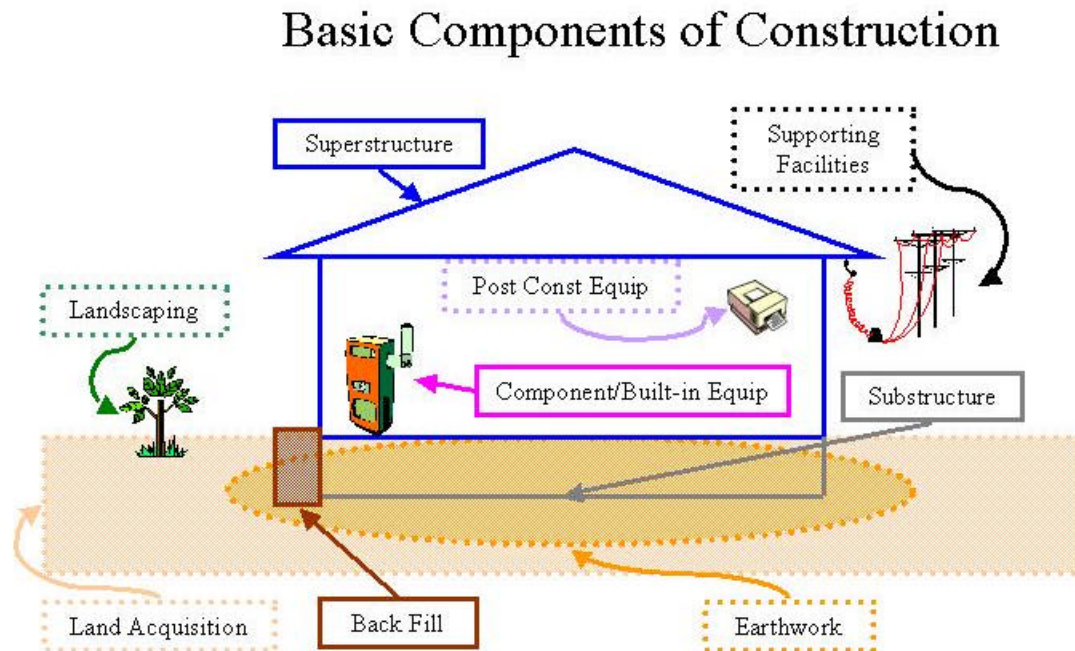
- Resource Allocation
- Recapitalization Metric
- Economic Analysis
- Common Weighting Factor
- Trend Analysis
- Budget Analysis

The group outlined their expected attributes for PRV:

- PRV must have a consistent definition and calculation
- PRV describes the cost to design and construct a facility to replace an existing facility with a generic facility that can perform the same function
- PRV is necessary to describe an inventory of facilities measured in incompatible units of measure, such as square feet, gallons, and kilowatts.
- PRV is expressed in current year dollars.
- PRV is not expected to be equal to the DD 1391 project cost to replace a facility.
- PRV will estimate the cost to replace a facility with one of the same size in the assigned primary unit of measure (UM).
- PRV will accommodate replacement of a facility to the current standards of construction.
- PRV is a notional and macro value, valid only across an inventory of facilities.

3. Components of Construction

Given the purposes and expected attributes of PRV, the next step was to define the various components of construction and determine those components that were applicable in calculating PRV. For each component, the PRV Panel arrived at a consensus on the definition of the component and its applicability for use in a PRV calculation. The components of construction can be visualized as follows:



3.1 Components of Construction to be included in PRV

The following components, along with their definition, were considered essential for inclusion in PRV calculations:

- **Primary Facility Construction**

Primary facility construction includes all construction activities required to complete a specific facility, from the point when a prepared construction site exists and earthwork is finished, through the completion of the finished facility. Major components of primary facility construction are the placement of the foundation, the construction of substructure and superstructure, the backfilling of open excavations, and providing utility connections within the immediate area of the facility (within the five-foot line surrounding the facility). Although the installation of initial equipment is

often considered part of facility construction, it has been separated here to better distinguish between component equipment and post-construction equipment.

- **Component Equipment**

Component equipment is that equipment which is incorporated into the construction of a facility and is necessary for the function of the facility. This equipment tends to be permanent in nature and is considered part of the facility. Examples of component equipment would be central heating and cooling equipment in buildings, and overhead cranes in maintenance and production facilities.

- **Seismic Construction Requirements:**

The requirements for seismic construction are a quantifiable aspect in replacing an existing facility. However, the costs associated are normally captured in the area cost factor for a given location and, therefore, were not included in PRV as a separate component or factor. The use of the area cost factor will be discussed below.

3.2 Components of Construction not to be included in PRV

The following components of construction, along with their definition, were determined to be outside the scope of PRV and not to be included in a PRV calculation.

- **Land Acquisition**

Land acquisition is the acquiring of land necessary for construction, but is not already available for that purpose. This may include land purchase, grant, or leasing.

Land acquisition is not included in PRV, because PRV is for an existing facility at an existing location. The land on which the existing facility is located would already be under the control of the Government, therefore no additional land needs to be acquired to construct the notional replacement facility.

- **Site Preparation**

Site preparation is the clearing and grubbing, demolition, and layout of a construction site. This includes the removal of surface vegetation and debris (clearing), such as the cutting down of trees and brush and the removal of subsurface vegetation (grubbing), such as the digging out of roots and stumps. Demolition is the systematic destruction and removal of an existing facility to restore the area to its natural condition or to create space for a new facility. Site layout is the location and marking of key facility components and dimensions on the construction site, such as the location and marking of a

building foundation or the location and marking of a pavement centerline and shoulders.

During the discussion of this component, the PRV Panel initially created a subset of site preparation called site restoration. Site restoration included the tasks of demolition and environmental remediation and mitigation, which may be encountered in the process of replacing an existing facility. However, this distinction was eliminated in later discussions.

Site preparation cost is not included in PRV because the site would already have been prepared in the process of constructing the original facility.

- **Earthwork**

Earthwork entails those operations connected with the movement of earth for construction purposes. Examples of earthwork are the excavation of a space for the foundation of a building, or the cut and fill of material to create the sub-grade for a pavement.

Earthwork is not included in PRV because all excavation or cut and fill work would already have been accomplished in the process of constructing the original facility.

- **Landscaping**

Landscaping is the reshaping of the ground surface and planting of vegetation to create a pleasing surrounding area for a facility.

Landscaping is not included in PRV because it involves a more aesthetic aspect of construction rather than an integral component of the facility. In most cases, it would also involve costs beyond the five-foot line of the original facility.

- **Post-Construction Equipment**

Post-construction equipment is that equipment placed into a facility after construction and used by occupants to assist them in their work. This equipment tends to be temporary in nature and is the property of the using organization rather than being a part of the facility. Examples of post-construction equipment are window air conditioners, office machines and furniture, and portable maintenance equipment.

Post-construction equipment is not applicable since this equipment is not specifically defined or accounted for as real property in the real property inventories.

- **Supporting Facilities Construction**

This area encompasses the construction of those other facilities that are required for the proper function of the primary facility, but are not considered

as part of that facility. For example, when a unit barracks is constructed, the extension of utility lines and access roads to the new barracks are required for the barracks to be functional as housing for troops. Therefore, the new utility lines and road would be supporting facilities to the barracks.

However, supporting facilities are not part of the primary facility; so their costs are not included in the primary facility's PRV. A supporting facility will have a PRV of its own.

- **Associated Facilities Construction**

This component describes the construction of those other facilities that are associated with, but not required for the proper function of the primary facility and, as such, are not considered as part of that facility. For example, if a unit barracks is constructed in conjunction with the unit headquarters building and a dining facility, the headquarters and dining facility are associated with the barracks, but not required for the barracks to function as housing for troops. Therefore, the headquarters and dining facilities would be associated facilities to the barracks.

Like supporting facilities, associated facilities are not part of the primary facility; so their costs are not included in the primary facility's PRV. An associated facility will have a PRV of its own.

- **Displacement and Temporary Structures.**

This was an additional area discussed by the group and consists of the costs of temporary structures or leased spaces that may be required while actually replacing a facility. Since these costs are dependent upon specific situations and the fact that temporary structures are accounted for separately as real property, this category was not included in PRV.

4. Cost Components and Factors for Estimating Construction Costs

Once the PRV Panel reached a consensus on the components of construction that are included in PRV, the next step was to determine the methodology for calculating PRV. The group conducted a review of the available methods for calculating construction costs; selecting those cost components and factors necessary to calculate PRV. For each cost component or factor, the PRV Panel arrived at a consensus on the definition of the component and its applicability for use in a PRV calculation.

4.1 Costs and Factors Necessary to Calculate PRV

The following areas were considered necessary to calculate PRV:

- **Planning and Design**

Planning and design is the process of developing the general layout of facilities (planning) and the detailed structural concept (design) of a facility. Planning is the layout of facilities, spaces within facilities, and facilities in open spaces in order to develop the general scheme of a facility or group of facilities. An example of planning would be the determination that a multistory administrative building of given capacity was to be constructed on a specific plot of land. Designing is the creation of the detailed structural concept of a facility as represented by engineering plans and other drawings. An example of design would be the creation of detailed engineering specifications and blueprints for a specific building at a specific location.

10 USC sections 4540, 7212, and 9540 authorize the Services to employ the architectural or engineering (A-E) services of persons outside the Department for planning and design services. Under these sections, the fee for planning and design services may not be more than 6 percent of the estimated construction project. Not included in this limitation is the cost associated for the Service to execute the planning and design service contract. For example, AFI 65-601 (paragraph 9.16.10) directs that certain costs are not included within the 6 percent threshold. These costs include design review, preparation of contract documents, proposal and bid requests, advertisements, design criteria development, and travel.

The Military Construction Codification Act of 1982 amplifies the Architectural and Engineering Services and Construction Design as contained in Title 10, Section 2807. It distinguishes between advance planning actions to support development of a project and those planning and design actions required to execute a construction project. Specific extracts that are applicable to planning and design are:

- Advance planning functions are: (1) developing the requirement for a military construction project, (2) developing a master plan for an installation, (3) alternative site studies, (4) developing and validating the military construction project documentation prior to commencing design, (5) preparing engineering analyses and studies to develop technical design parameters, and (6) preparing environment impact assessments and statements. Advance planning should be funded from the operations and maintenance account.
- Other functions that may be performed under the authority of this section are (1) the development and updating of design criteria and manuals, (2) preparing standard designs and definitive drawings used on military construction projects, (3) management of military construction program design and contract administrative services for design, (4) project cost certifications, (5) the administration of architectural and engineering services contracts for the design of military construction and land acquisition projects, and (6) pre-

construction contract award activities including printing and reproduction of bid documents, preparing pre-bid government estimates and liaison with prospective bidder and construction personnel.

- Overhead costs for the above functions, such as travel, support, material, and equipment should be charged to the appropriation authorized under the authority of this section.

Based on the foundations for planning and design and budget guidance issued by OSD (Comptroller), the PRV Panel quantified the planning and design allowance at 9%.

- **Area Cost Factor**

Area Cost Factors are developed based on the local conditions affecting construction costs. Factors considered include weather, seismic, climatic (frost zone, wind loads, and HVAC), labor availability, contractor overhead and profit, life support and mobilization, and labor productivity versus the U.S. standard. The Tri-Service Cost Factor Guide details area cost factors for CONUS and OCONUS locations. The factors range from 59 percent for low-cost areas to 345 percent for high cost areas.

- **Historical Requirements Adjustment**

This adjustment provides an allowance for unique architectural features to comply with facilities to be built at locations listed in the National Register of Historical Landmarks. TM 5-800-4, paragraph 11a provides for a 5 percent adjustment in these cases.

The cost impact of historic facilities or facilities located within historic districts listed on the National Register of Historical Landmarks are evident in the aspects of restoration and modernization as follows:

- While historic building and structures are not typically “replaced,” these facilities incur significant restoration efforts to extend the life of the facility. Incident to these restorations is the requirement for unique architectural features to be preserved or duplicated.
- During modernization, additional materials and effort are required to mask or screen the impact of these modernizations and to avoid detracting from the architectural theme. This becomes evident in the installation of updated standards in HVAC, fire suppression, force protection, elevators, and handicapped accessibility.
- Construction of modern buildings within historic districts must receive additional architectural features to preserve the architectural theme.
- Utilities and infrastructure are also impacted while being replaced within historic districts. Examples include lighting, roadways,

pavements, and fencing as well as the increased cost to replace underground utilities based on the surface that must be disturbed, such as brick or cobblestone vice asphalt.

It was noted that the 5 percent adjustment allowed for in TM 5-800-4 was based on costs experienced over a range of projects completed before 1994 and has not been updated since that time.

However, the PRV Panel determined to continue using the 5 percent adjustment until more current data is collected and reviewed. The requirement for the Services to adequately identify historical facilities and facilities within historical districts was identified in the draft revision to the DoDI 4165.14.

On 10 July 2002, the use of this factor for increased costs associated with historic facilities and facilities within historic districts was briefed to the Principal Assistant Deputy Under Secretary of Defense (I&E), who concurred with the recommendations of the PRV Panel.

- **Antiterrorism/Force Protection**

DoDI 2000.16 established DoD Standard 20, which requires the development of antiterrorism/force protection (AT/FP) guidelines for new construction. The USD Memo dated December 19, 1999, Interim DoD AT/FP Construction Standards, implemented the requirement to provide guidance for the minimum construction requirements to be incorporated into all inhabited new construction and major renovations funded under the Military Construction appropriations for fiscal year 2002 and beyond. While a minimum standard is dictated regardless of threat level, it also addresses measures that can be applied when higher threat levels exist.

Estimating the costs associated to AT/FP involves a variety of factors:

- Facility use:
 - Uninhabited: less than one person per 400 SF
 - Inhabited: one or more people per 400 SF
 - Primary Gathering: 50 or more personnel routinely gather
 - Living Spaces: Unaccompanied personnel barracks
- Facility layout: Number of stories.
- Facility standoff: distance from primary facility to other facilities, roads, parking, and installation perimeter.
 - Minimum standoff is 80 feet for inhabited structures and 150 feet for primary gathering and living spaces.
- Identified threat and aggressor tactics.

Minimum Standards apply when required standoff distances are met

and no specific threat is identified. Costs are computed to estimate the additional construction measures required above and beyond normal construction standards. The costs to comply with the minimum standards are estimated as follows:

- No additional measures are required for uninhabited structures.
- 0.5 percent for facilities with one or two stories, except administrative facilities.
- 1.0 percent for all administrative facilities and for facilities with three or more stories.

The current real property records do not contain sufficient information to allow for an automated calculation of AT/FP costs. Business rules could model an automated system to compute the minimum standards with an acceptable of accuracy. Estimated costs above the minimum standards are too specific per site and individual facility to allow for a calculation of AT/FP costs across the entire spectrum. Additionally, these interim standards may be revised as the DoD Security Engineering manuals are published and the standards are put into effect during FY 2002.

In view of the above, the PRV Panel determined that AT/FP costs should be included within the individual construction cost factors once finalized guidance is published and historical cost data is generated.

- **Construction Management (SIOH)**

Construction management consists of the costs necessary to ensure that a project is completed as designed, to original specifications, and on schedule. This includes supervision of the overall project, inspection of construction, and management overhead. When considered together as a single entry, this supervision, inspection, and overhead are referred to as SIOH.

10 USC Section 2205 authorizes the DoD and the Services to charge a fixed rate for reimbursement of the costs of providing planning, supervisory, administrative, or overhead services incident to any construction maintenance, or repair project to real property, regardless of the appropriation financing the project.

NAVFACINST 7820.1J discusses the policy of mission funding construction management for certain appropriations and establishes a fixed rate of reimbursement for other appropriations. Specifically, the SIOH rate is 6 percent CONUS and 6.5% OCONUS.

DA PAM 415-15, paragraph 3-17h specifies the SIOH recovery rates for projects executed by the Corps of Engineers. While TM 5-800-4 (paragraph 8b) and ER 1110-3-1300 (paragraph 9e) also specify differing SIOH rates, the Department of Army Pamphlet was considered the governing directive. The rates in effect are:

- For construction funded under MILCON appropriations, the SIOH rate is 5.7 percent CONUS and 6.5 percent OCONUS.
- For O&M funded construction, the SIOH rate is 6.5 percent CONUS and 8 percent OCONUS.

Based on the above, the PRV Panel elected to adopt common factors for SIOH, regardless of the execution agency or appropriation. The recommended allowances for SIOH were 6.0 percent for CONUS and 6.5 percent for OCONUS. CONUS was defined as the 48 contiguous states while Alaska, Hawaii, other possessions, and all foreign countries would be considered OCONUS.

- **Contingency**

Contingency is the additional allocation of funds intended to cover unforeseen conditions and/or occurrences that may be encountered during construction and that were not discernable from the data at hand during engineering and design. Areas for which contingency is usually reserved include unforeseeable relocations, unforeseeable foundation conditions, and encountering utility lines in unforeseen locations.

DoD 7000.14-R, Volume 2b, paragraph 060502 states the appropriate contingency rate will be addressed in the guidance memorandum for applicable fiscal year Defense Budget Review. In those years where contingency was authorized, the rate was traditionally 5 percent.

4.2 Costs and Factors Not Pertinent to PRV Calculations

The following costs and factors, along with their definition, were determined to be outside the scope of PRV and not to be included in a PRV calculation. The PRV Panel reasoning for these exclusions is also documented.

- **Size Adjustment Factor**

The Size Adjustment Factor is based on data analysis that shows a correlation exists between project size and construction cost. Unit construction costs generally are lower for larger projects due to greater opportunities for material quantity discounts and for spreading mobilization, demobilization and general overhead costs over a greater number of units. The Tri-Service Cost Factor Guide details construction costs based on a referenced facility size. The size adjustment factors are listed to adjust unit cost from the reference size to the scope of the proposed facility or project. These values range from 92% for facilities larger than the reference size to 127.5% for facilities smaller than the reference size.

This factor was not included since all cost factors are based on a common reference size and the effects would be balanced across an inventory of facilities.

- **Inflation Adjustment**

The Inflation or Escalation Adjustment is used to determine project cost escalation due to inflationary factors based on the assumed midpoint construction time relative to today's cost factors. The Tri-Service Cost Factor Guide details escalation adjustments based on future fiscal years. These adjustments are published by OSD (Comptroller) to support specified POM and budget submissions.

The escalation adjustment would not be used in PRV calculations, except during actual planning or programming when the year of replacement may be determined.

- **Technological Updating Adjustment**

The Technological Updating Adjustment provides for an additional allowance for specialized facilities where technological advances in equipment and operation techniques are developed rapidly, causing obsolescence to occur before design and construction can be completed. TM 5-800-4, Appendix D provides technological updating adjustments based on the category group of facilities. Based on category group, the adjustments range from zero to 10 percent.

This adjustment, because it is used to forecast advances in technology, is not applicable to PRV, which is based on current standards.

- **Design Contingency Allowance**

The Design Contingency Allowance exists to cover component items that cannot be analyzed or evaluated at the time a facility cost estimate is prepared; however, these components are susceptible to additional cost evaluation as planning and design progresses. This allowance depends on the reliability of the data used in the cost estimate. It diminishes as design progresses from concept through design completion. TM 5-800-4, paragraph 6f and Table 2 provide these allowance factors based on the level of technical complexity and design stage.

This allowance is used as a placeholder during project execution and is not applicable to PRV calculations.

- **Risk Adjustment**

The cost adjustment due to risk is provided for highly complex facilities involving complex and/or innovative technology. The level of risk varies on different facilities and is determined using existing commercial software applications. TM 5-800-4 only provides for use of this adjustment when properly supported.

This adjustment is only required in unique circumstances and is not valid across an inventory of facilities.

- **Site Sensitivity Adjustment**

The site sensitivity adjustment is reserved for those special cases where the unique nature of both the site and the project in relation to one another causes a significant impact on cost. Factors contributing to this adjustment include general labor availability, housing availability, material availability, and congested/inadequate sites. TM 5-800-4, paragraph 11d and Appendix E outline the methodology for calculating this adjustment. Calculated values could range from -1.4% to +16.4%.

This adjustment is only considered in unique circumstances. Current automated systems do not capture the data required for computing this adjustment. At a macro level, several of the factors influencing this adjustment are already reflected in the area cost factor.

- **Technical Specialty Competition Adjustment.**

This adjustment is reserved for those special cases where the competition for the services of certain specialty labor or trades is apparent. This may occur due to a decrease in the number of these trades in the available workforce or an increase in requirements for their services. TM 5-800-4, paragraph 11e and Appendix E outline the methodology for calculating this adjustment. Calculated values could range from -1.4% to +7.6%.

This adjustment is only considered in unique circumstances. Current automated systems do not capture the data required for computing this adjustment. At a macro level, the majority of the factors affecting this adjustment are also reflected in the basic unit cost and area cost factor.

5. Additional Considerations for Health Care Facilities

Military Handbook 1191 dated 24 May 1996 provides design and construction criteria for DoD Medical and Dental Treatment Facilities. Paragraph 1.9 of Military Handbook 1191 discusses the purpose and requirement for the facility tabulation and upgrade surveys. These surveys include seismic upgrade surveys, basic life safety surveys, life safety and utility systems surveys, medical gas, air, and vacuum system surveys, alternative sources of power surveys, waste management, hazardous and bio-hazardous material surveys, and special studies. In total, twenty-two studies are required during the design phase of a construction project for a health care facility, many of which are unique to only these types of facilities. Additionally, the number of submittals, levels of review, and design conferences are higher for medical projects in comparison to non-medical construction. It is common for these projects to require six to seven submittals, with fifteen reviewers and seven design conferences as compared to three to four submittals, with five to six reviewers and three design conferences for non-medical projects.

This increased design effort naturally requires a higher investment of planning and design funds. At the request of the PRV Panel, OASD (HA) conducted an analysis of the historical costs for planning and design as related to the primary facility cost. This analysis reviewed actual costs expended for planning and design actions for new and replacement construction projects from 1996 to 2001. It was found that planning and design actions for these projects averaged 13.13% of the primary facility cost. The details of this analysis are contained in Appendix D.

Based on this analysis, the PRV Panel reached a consensus that the planning of design allowance of 9% would not be adequate to address the needs for health care facilities and recommended that a 13% allowance for planning and design be computed for health care facilities. This increased allowance would be applied only in the following FACs:

- 5100 Medical Center/Hospital
- 5302 Medical Laboratory
- 5303 Morgue
- 5304 Veterinary Facility
- 5400 Dental Facility
- 5500 Dispensary and Clinic

Specifically excluded from this increased allowance were Medical Warehousing (FAC 5306) and Ambulance Shelter (FAC 5307). These types of facilities were excluded since the increased and specialized planning and design effort is not required.

6. Definition and Formula for Calculating PRV

6.1 Definition of PRV

Plant Replacement Value (PRV) is the cost in current year dollars to design and construct a notional facility to replace an existing facility at the same location. The notional replacement facility will perform the same functions as the existing facility, within the same capacity as calculated in the assigned Facility Analysis Code (FAC) primary unit of measure. The notional replacement facility will also be constructed to current standards of materials and design consistent with DoD policies. PRV is a macro value that is valid across an inventory of facilities and should not be used to represent the actual construction cost to replace a single existing facility. Additionally, PRV is only associated to existing real property assets and does not address current or new mission deficits or capacity shortfalls. However, the value of PRV can be projected into the future using an asset quantity, the other formula elements, and the appropriate inflation adjustment.

PRV does not include the costs for land acquisition, site preparation, earthwork, landscaping, supporting facilities, associated facilities, or studies/surveys outside normal planning and design for construction. Also not included are items referred to as post construction equipment or personal property such as computer systems, personal property, and furniture. PRV does not include costs due to site-specific conditions, except those conditions used to formulate the area cost factor, such as congested, inadequate or secure sites. Additionally, it does not include costs not associated to recapitalization or replacement construction costs such as demolition or environmental mitigation/remediation.

6.2 Formula for Calculating PRV

$$\text{PRV} = \text{Assets} * \text{CCF} * \text{ACF} * \text{HRA} * \text{P\&D} * \text{SIOH} * \text{CONT}$$

Factor	Definition	Value
Assets	Quantity of facilities in the assigned FAC primary unit of measure	Obtained from Service RPI
CCF	Construction cost factor	Published in the DoD Cost Factor Handbook
ACF	Area Cost Factor	Published annually by ODUSD (I&E)
HRA	Historical Requirements Adjustment	Value of 1.05 (5%) for historic facilities or facilities within historic districts
P&D	Planning and Design	Linked to OSD (C) PBD Guidance 1.09 (9%) for all facilities 1.13 (13%) for select health care facilities
SIOH	Supervision, Inspection, and Overhead	1.06 (6%) for CONUS facilities 1.065 (6.5%) for OCONUS facilities
CONT	Contingency	1.05 (5%) for all facilities

7. Impact of Design Actions Contained within Select DoD Construction Cost Factors

The PRV definition and formula developed by the PRV Panel included an allowance of 9% for planning and design. In some cases, the DoD Cost Factors also contain a design component. The cost factors containing a design component are typically derived from commercial sources, such as Means or Marshall and Swift. Cost

factors derived from the Tri-Service Committee on Cost Engineering and other DoD sources do not contain a design component.

The PRV Panel considered two options to eliminate the potential for “double-counting” the planning and design costs when calculating PRV. The first option was to eliminate the planning and design allowance from the PRV formula and ensure that all cost factors contain the appropriate design component. The second option was to retain the planning and design allowance while ensuring that no cost factors contain a design component.

The group reached a consensus that the planning and design allowance would remain in the PRV formula and that the design component will be removed from the cost factors. The predominate reason behind this decision was the potential loss of visibility for planning and design that maybe encountered if these actions were all contained within the cost factors.

Upon execution of the revised definition and formula for PRV, the DoD construction cost factors will have to be revised to reflect removing the design component from the affected FACs. Appendix C contains a listing of the FACs and the applicable reduction to account for this issue.

8. Changes to the FAC Structure and Category Code Mappings

Subsequent to developing a revised definition and formula for PRV, the PRV Panel reviewed the Facilities Classification System and the underlying FAC structure. In total, 254 changes were considered with the group accepting 220. A portion of these changes were approved for execution in FY 2002, while the remainder were recommended for implementation in FY 2003. A table of the detailed FAC and CATCODE mapping changes is included in Appendix E. The following changes were reviewed:

8.1 FY 2002 FAC Changes

- **Piers and Wharfs.** There are fundamental differences in construction of piers and wharfs, and it was determined these facilities should be separated in order to allow unique cost factors to be adopted. FAC 1511 (Pier and Wharf) was subdivided into two separate FACs based on differences in configuration and associated cost factors. The new FACs assigned were 1511 (Pier) and 1512 (Wharf). This change was necessary to develop more accurate sustainment and new construction cost factors.
- **Non-firing Hand Grenade Ranges.** The new FAC 1789 (Hand Grenade Range, Non-Firing) was requested by the Army to better allow its management systems to map to FACs.
- **Component Fire, Fire Extinguishing, and Energy Management Systems.** This change was needed in order to accurately reflect these systems as

components of facilities rather than as separate facilities of their own and to avoid double counting the costs of those systems within buildings and those listed as separate facilities. The change involved deleting FACs 8801 (Fire and Other Alarm System), and 8811 (Fire Extinguishing System.) All CATCODES and facilities from these FACs would be assigned to FAC 8999 (Miscellaneous Component of Other Facility). FAC 8925 (Energy Management and Control System) underwent additional review and this FAC will remain. The component costs for these systems will be deleted from the cost factors of the individual building FACs in which they are commonly installed.

8.2 FY 2002 CATCODE Reassignments

- **Aircraft Pads from Miscellaneous Pavements to Aircraft Aprons.** FAC 1164 currently contains very diverse types of facilities that make accurate cost factor assignments difficult. The CATCODES pertaining to various types of aircraft pads were moved from FAC 1164 (Miscellaneous Airfield Pavement, Surfaced) to FAC 1131 (Aircraft Apron, Surfaced). This allowed FAC 1164 to only contain those various pavements related to airfield operations, but not designed to hold aircraft specifically; e.g. van pads and vehicle parking. The CATCODES recommended for reassignment are specified as Type B traffic areas along with aircraft aprons per UFC 3-260-02 (Unified Facilities Criteria – Pavement Design for Airfields).
- **Various CATCODE Reassignments.** Several CATCODES are recommended for reassignment to different FACs based on their definition and usage as follows:

Service	CATCODE	Long Name	Old FAC	Description	New FAC	Description
Air Force	141747	WS-430B Photo Processing and Interpretation Facility Support Building	1444	Miscellaneous Operations Support Building	1441	Photo/TV Production Building
Navy	14325	Seal Team Building	1431	Ship Operations Building	1444	Miscellaneous Operations Support Building
Navy	14328	Underwater Construction Team Building	1431	Ship Operations Building	1444	Miscellaneous Operations Support Building
Air Force	411138	Storage Solvents	4111	Bulk Liquid Fuel Storage	4121	Bulk Liquid Storage, Other Than Fuel
Navy/	44113	MARCOR	4421	Covered	4411	Covered

Service	CATCODE	Long Name	Old FAC	Description	New FAC	Description
USMC		LOGSUPBASE Warehouse		Storage Building, Installation		Storage Building, Depot
Navy/USMC	44114	MARCOR SASSY Warehouse	4421	Covered Storage Building, Installation	4411	Covered Storage Building, Depot
Army	14175	Industrial Laundry	1444	Miscellaneous Operations Support Building	7342	Laundry/Dry Cleaning Facility
Army	14178	Employee Changing Building	1444	Miscellaneous Operations Support Building	7382	Locker Room

- **Army Maintenance Facilities.** Various Army CATCODES were reassigned to different FACs based on their usage and the manner in which the space is programmed, at the request of the Army. This involved changes within Aircraft, Missile, and Installation Support Equipment Maintenance Shops.

Service	CAT CODE	Long Name	Old FAC	Description	New FAC	Description
Army	14167	Cylinder Refilling Station/Facility	1444	Miscellaneous Operations Support Building	1499	Miscellaneous Operations Support Facility
Army	14170	Production Plant Support Structure	1444	Miscellaneous Operations Support Building	1499	Miscellaneous Operations Support Facility
Army	21113	Aircraft Parts Storage	2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar
Army	21116	Hangar Shop Space	2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar
Army	21117	Avionics Maintenance Shop, Installation	2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar
Army	21120	Aircraft Component Maintenance Shop	2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar
Army	21130	Aircraft Paint Shop	2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar
Army	21416	Missile Maintenance Building	2121	Missile Maintenance/Assembly Building	2141	Vehicle Maintenance Shop
Army	21850	Battery Shop	2181	Installation Support Vehicle Maintenance Shop	2182	Installation Support Equipment Maintenance Shop

Service	CAT CODE	Long Name	Old FAC	Description	New FAC	Description
Army	21845	Administration And Shop Control, DOL/DPW/IMMA/IMMD	2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop
Army	21870	Maintenance Storage, DOL/DPW/IMMA/IMMD	2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop
Army	21882	General Item Repair Shop, DOL/DPW/IMMA/IMMD	2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop
Army	21885	Maintenance Shop, General Purpose	2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop
Army	21887	Compact Item Repair Shop, DOL/DPW/IMMA/IMMD	2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop

8.3 FY 2002 Revised Category Codes/Real Property Inventory.

- The Army consolidated its transient housing into a new CATCODE 72010. Under this consolidation, real property assets within CATCODES 72120 and 72411 were transferred to CATCODE 72010. The new CATCODE has been added under FAC 7442 (Transient and Recreational Housing) and the old CATCODES were aligned under this FAC until the real property inventory is completely adjusted.
- The Army renamed CATCODE 17883 from Hand Grenade Familiarization Range (Live) to Live Hand Grenade Range.

8.4 FY 2003 FAC Changes

- **Operating Fuel Storage.** FAC 1241 (Operating Fuel Storage) was reviewed for subdivision into four separate FACs based on differences in the type of fuel. The proposed FACs were 1241 (Aircraft Operating Fuel Storage), 1242 (Marine Operating Fuel Storage), 1243 (Vehicle Operating Fuel Storage), and 1244 (Other Operating Fuel Storage). This change was considered necessary to properly assign the inventory to Investment Categories (ICs). Without this change, facilities that should be in ICs 01, 03, and 04 (Aviation Operational, Waterfront Operational, and Other Operational, respectively) would be incorrectly consolidated into one single FAC. However, on further review it was found that reporting the RPI by investment category was no longer considered relevant, even though still required in the DoD Financial Management Regulations (FMR). The PRV Panel recommended that the FMR be amended to discontinue reporting PRV by IC and the proposed changes to FAC 1241 were not approved by the PRV Panel.

- **Training Ranges.** The number of separate FACs for training ranges was increased based on the differences in the weapons systems these ranges support. There are fundamental differences in size and configuration of the various training ranges, and these facilities should be separated in order to allow unique cost factors to be adopted. This change was necessary to increase the accuracy of cost factors and to better indicate the specific weapons systems the ranges support. To support the recommended number of new range FACs, five new 3-digit Basic Categories will be required.

Old Range FAC		New Range FAC(s)	
		* Change in the FAC number only	
1794	Observation Tower/Bunker	1734	Observation Tower/Bunker*
1771	Maneuver/Training Land, Light Forces	1741	Maneuver/Training Land, Light Forces*
1772	Maneuver/Training Land, Heavy Forces	1742	Maneuver/Training Land, Heavy Forces*
1773	Weapons Impact Area	1743	Weapons Impact Area*
1774	Parachute Drop Zone	1744	Parachute Drop Zone*
1775	Parade and Drill Field	1745	Parade and Drill Field*
1781	Small Arms Range	1750	General Purpose Small Arms Range
		1751	Zero Range
		1752	Field Fire Range
		1753	Record Fire Range
		1754	Night Fire Range
		1755	Known Distance Range
		1756	Sniper Range
		1757	Pistol Range
		1758	Machinegun Range
1782	Direct Fire Range	1760	General Purpose Direct Fire Range
		1761	Grenade Launcher Range
		1762	Grenade Machinegun Range
		1763	Light Antiarmor Weapon Range
		1764	Heavy Antiarmor Weapon Range
		1765	Artillery Direct Fire Range
		1766	Tank Stationary Gunnery Range
1783	Indirect Fire Range	1767	Indirect Fire Range*
1784	Scaled Range	1768	Scaled Indirect Fire Range

Old Range FAC		New Range FAC(s)	
		* Change in the FAC number only	
1785	Tank/Fighting Vehicle Training Range	1769	Scaled Gunnery Range
		1771	Armor Vehicle Crew Training Range
		1772	Armor Vehicle Unit Training Range
1787	Infantry Unit Training Range	1773	Fire and Movement Range
		1774	Squad Defense Range
		1775	Infantry Battle Course
1788	Urban Combat Training Range	1776	Urban Combat Training Range*
1797	Light Demolition and Flame Training Range	1797	Live Hand Grenade Range (Approved in FY 2002 as FAC 1879)
		1782	Engineer Qualification range
		1783	Light Demolition and Flame Training Range
1786	Air Defense Range	1794	Air Defense Range*

- **Transient and Recreational Lodging.** FAC 7442 (Transient and Recreational Lodging) was subdivided into two separate FACs based on differences in the official status of the personnel being lodged. The new FACs are 7441 (Transient Lodging) and 7442 (Recreational Lodging). This change also required the renumbering of the FACs for Boathouse (7441), Miscellaneous MWR Facility (7445), and Miscellaneous MWR Support Facility (7446).

Old FAC		New FAC(s)	
		* Change in the FAC number only	
7442	Transient and Recreational Lodging	7441	Transient Lodging
		7442	Recreational Lodging
7441	Boathouse	7445	Boathouse *
7445	Miscellaneous MWR Facility	7446	Miscellaneous MWR Facility *
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility *

- **Utilities.** FACs within the Utilities class (FAC 8XXX) were further categorized to better analyze the reported inventory. These changes helped to provide better visibility of sustainment and construction costs at both a macro level and within the Services and Agencies. Within several FACs, groups of utility structures with similar construction or configuration warranted minor realignments between FACs or establishment of a new FAC.
- **Water Source Potable (FAC 8411):** This FAC previously consisted of water wells, water surface supplies, and commercial water supplies. A change was made to create a new FAC 8414 (Water Well, Potable) for the water wells while leaving the other type of supplies within this FAC.
- **Reservoir, Potable Water (FAC 8414) and Reservoir, Non-Potable Water (FAC 8443):** These two FACs were combined into a single FAC 8443. There are no significant differences in design, configuration, or cost between these two FACs. Additionally, from a technical standpoint, all reservoirs are classified as non-potable since some treatment is required before consumption.
- **Retaining Structure (FAC 8712) and Dam (FAC 8923):** FAC 8712 contained dikes, dams, and retaining walls. FAC 8923 consisted of only dams. A new FAC 8713 was created for only dikes and dams and the inventory for dikes and dams were removed from FACs 8712 and 8923.
- **Miscellaneous Utility Facilities (FAC 8929):** This FAC consisted of a wide range of various types of facilities. New FACs (see table below) were created for the following type of facilities which are contained in all of the Services inventory:
 - Utility Vaults
 - Landing Platform/Ramp
 - Vehicle Scales

Old FAC		New FAC(s)	
8411	Water Source, Potable	8411	Water Source, Potable
		8414	Water Well, Potable
8414	Reservoir, Potable Water		
8443	Reservoir, Non-Potable Water	8443	Reservoir, Water
8712	Retaining Structures	8712	Retaining Structures

Old FAC		New FAC(s)	
8923	Dams	8713	Dams and Dikes
8929	Miscellaneous Utilities Facilities	8923	Vehicle Scale
		8927	Utility Vaults
		8928	Loading Platform/Ramp
		8929	Miscellaneous Utilities Facilities

8.5 FY 2003 CATCODE Reassignments

- **Various CATCODE Reassignments.** Several CATCODES were recommended for reassignment to different FACs based on their definition and usage as follows:

Service	CATCODE	Long Name	Old FAC	Description	New FAC	Description
Navy/ USMC	44114	MARCOR SASSY Warehouse	4421	Covered Storage Building, Installation	4411	Covered Storage Building, Depot
Army	14178	Employee Changing Building	1444	Miscellaneous Operations Support Building	7382	Locker Room

- **Air Force Requested Reassignments.** Several CATCODES were recommended for reassignment to different FACs based on their definition and usage as follows:

Service	CATCODE	Long Name	Old FAC	Description	New FAC	Description
Air Force	141391	Radar Transmitter and Computer Building	1402	Air Defense Operations Building	1311	Communications Building
Air Force	141914	Missile Guidance Facility	1403	Missile Operations Building	1452	Missile Guidance Facility
Air Force	171628	Launch Operations Training Facility	1712	Applied Instruction Building	1711	General Purpose Instruction Building

Service	CATCODE	Long Name	Old FAC	Description	New FAC	Description
Air Force	171712	Target Intelligence Training	1712	Applied Instruction Building	1711	General Purpose Instruction Building
Air Force	211177	Small Aircraft Maintenance Dock	2111	Aircraft Maintenance Hangar	2112	Aircraft Maintenance Shop
Air Force	211157	Shop, Jet Engine Inspection and Maintenance	2112	Aircraft Maintenance Shop	2116	Aircraft Maintenance Shop, Depot
Air Force	214428	Vehicle Operations Parking Shed	2141	Vehicle Maintenance Shop	4425	Vehicle Storage, Covered
Air Force	319442	Equipment Research Engineering	3191	Miscellaneous Item And Equipment RDT&E Facility	3101	RDT&E Laboratory
Air Force	442515	Medical Storage For War Readiness Material	4421	Covered Storage Building, Installation	5306	Medical Warehouse
Air Force	510411	Air Force Clinic	5100	Medical Center/Hospital	5500	Dispensary And Clinic

8.6 Air Force Category Code and Cost Factor Review

A detailed review of approximately 35 CATCODES for the Air Force was conducted. Representatives of Headquarters, U.S. Air Force, DCS Installations and Logistics (ILE), Air Force Civil Engineer Support Agency (AFCESA), and R&K ENGINEERING, INC conducted this review from July 8 to July 11, 2002 at Tyndall Air Force Base. This review resulted in fifteen action items to be completed, with responsibility for completion divided between the Air Force and R&K Engineering, acting for ODUSD (I&E). Appendix F contains a complete description of these pending actions.

9. Pending and Implementing Actions

The following is a summary of the pending actions or actions which must be accomplished, in conjunction with implementing the recommendations contained in this report.

- Change to the DoD Financial Management Regulations to eliminate the requirement for reporting PRV by Investment Category. See paragraph 8.4.

- Inclusion of Anti-terrorism/Force Protection costs within the construction and sustainment cost factors as soon as definitive guidance is published and a cost history is generated. See paragraphs 4.1 and 6
- Incorporate data regarding historical facilities and facilities within historical districts within the Services' real property inventories. This requirement is currently incorporated in the pending revision to the DoDI 4165.14
- Those DoD Construction Cost Factors containing a design component must be reduced upon implementation of the PRV formula. This action will be completed and published in the DoD Facilities Cost Factor Handbook, Version 5. See paragraph 7 and Appendix C.
- The actions identified in the review of the Air Force CATCODES and cost factors are an ongoing process. These pending actions do not impede implementation of the revised PRV definition and calculation, but rather serve to better implement this revised process.

Except for the areas noted above, the revised definitions and formula contained in this report may be used to calculate PRV as early as the POM 05 budget formulation.

Appendix A: Composition of the PRV Panel

Name	Organization	Office
Lora Muchmore	OSD Installations	ODUSD (I&E) IRM
Jay Janke	OSD Installations	ODUSD (I&E) IRM
Sue Hunt	OSD Installations	ODUSD (I&E) IRM
LTC Danny Nobles	JCS	J4
LtCol Irvin Lee	JCS	J4
COL Morris McCoskey	OSD Reserve Affairs	OASD/RA (M&F)
Keith Kaspersen	OSD PA&E - FICAD	RA/FICAD
Allyn Brosz	OSD PA&E - FP	GPP/FP
Alex Miravite	OASD(HA)	TMA
Kent Bein	OASD(HA)	TMA
Surinder Sharma	OASD(HA)	TMA
Joyce Webb	OASD(HA)	TMA
Valerie McBee	OASD(HA)	TMA
Randy Palmer	Army	ACSIM
Julie Jones	Army	ACSIM
Christie Smith	Army	ACSIM
CAPT Al Banks	SECNAV	I&E
Jane Brattain	Marine Corps	HQMC (LFL)
Capt Scott Westerfield	Marine Corps	HQMC (PR) POM Development
Capt Joe Ordon	Marine Corps	HQMC (PR) Investment Budget
Steve Anderson	Marine Corps	HQMC (LFL)
CDR Ken Branch	Navy	N46 & N44
Wayne Miller	Air Force	AF/ILEP
Thomas Burns	Air Force	AFCESA

Name	Organization	Office
Stephen J. Hanson	HQ USACE	
John Hesson	R&K Engineering	
Frank Quigley	R&K Engineering	

Appendix B: References

Reference	Title	Date
10 USC	United States Code, Title 10, Supplement 5	Jan 23, 2000
HR 97-612	Military Construction Codification Act	Jun 17, 1982
DoDI 2000.16	DoD Combating Terrorism Program Standards	May 10, 1999
DoDD 4270.5	Military Construction Responsibilities	Mar 2, 1982
USD Memo	Interim DoD Anti-terrorism/Force Protection Construction Standards	Dec 19, 1999
DUSD (I) Memo	Unit Costs, Area Cost Factors, Size Adjustment Factors, and Inflation Rate Guidance for Department of Defense Facility Construction for FY 2002 and 2003	April 26, 2000
DoD FMR	DoD Financial Management Regulations	
DA PAM 415-15	Army Military Construction Program Development and Execution	Oct 25, 1999
NAVFACINST 7820.1J	Recovering Supervision, Inspection, and Overhead (SIOH) Services at Engineering Field Divisions/Activities (EFD/EFA) and Their Subordinate Organizations	Feb 9, 1998
AFI 65-601 Volume 1	Budget Guidance and Procedures	Nov 17, 2000
MILHDK 1191	Medical and Dental Treatment Facilities Design and Construction Criteria	May 24, 1996
AR 415-15	Army Military Construction Program Development and Execution	Sep 4, 1998
ER 1110-3-1300	Military Program Cost Engineering	Aug 26, 1999
TM 5-800-4	Programming Cost Estimates for Military Construction	May, 1994

Appendix C: Design Component Contained in DoD Construction Cost Factors

The following table reflects the percentage of the design component contained in the DoD Construction Cost Factors. The cost factors would need to be reduced by this design amount upon execution of the revised PRV definition and formula.

FAC	FAC TITLE	FAC DESCRIPTION	UM	CONS SRCE	Design Amount to be Removed from Cost Factor
1251	POL Pipeline	Pipelines for the transfer of operating and reserve supplies of petroleum, oil, and lubricant products.	MI	M&S	6%
1321	Communications Facility	A facility, other than a building, which supports communications operations and communication equipment.	EA	M&S	9%
1351	Communications Lines	Communication lines, to include overhead, underground, and marine cables and lines.	MI	M&S	9%
1541	Shore Erosion Prevention Facility	Structures constructed to prevent shore erosion as a result of wave action.	LF	M&S	6%
1551	Small Craft Berthing	Small craft berthing consists of either a pier or wharf providing an area for small craft (less than 66 feet in length) to berth. This may include lighterage vessels, tug boats, fireboats, and other small craft.	FB	M&S	6%
1552	Small Craft Building	A building in which small craft (less than 66 feet in length) can be stored.	SF	M&S	6%
1641	Harbor Marine Improvements	Structures constructed to improve harbor operations by reducing wave action.	LF	M&S	6%
2124	Missile Test Tower	A facility for testing guided missiles.	EA	M&S	9%
2231	Ship Production Plant	A facility for the production, quality assurance, and calibration of ships and ship components.	SF	Means	6%
2241	Tank/Automotive Production Plant	A facility for the production, quality assurance, and calibration of tanks, vehicles and their components.	SF	Means	7%
2242	Tank/Automotive Production Facility	A facility, other than a building, which supports the production, quality assurance, and calibration of tanks, vehicles, and their components.	SF	Means	7%
2251	Weapon Production Plant	A facility for the production, quality assurance, and calibration of weapons and weapon components.	SF	Means	7%
2252	Weapon Production Facility	A facility, other than a building, which supports the production, quality assurance, and calibration of weapons and weapon components.	SF	Means	7%

Report of the PRV Panel

FAC	FAC TITLE	FAC DESCRIPTION	UM	CONS SRCE	Design Amount to be Removed from Cost Factor
2291	Construction Material Production Plant	A facility for the production of construction materials for the installation.	EA	M & S	6%
3131	Ship and Marine RDT&E Facility	Buildings used in the direct research, development, testing, and evaluation of ships and marine equipment, and amphibious vehicles.	SF	Means	10%
3201	Underwater Equipment RDT&E Facility	Buildings used in the direct research, development, testing, and evaluation of underwater equipment.	SF	Means	8%
4426	Storage Silo, Loose Material	A facility for storage of loose material such as sand or road salt.	SF	Means/AF	6%
6103	Printing And Reproduction Plant	A facility designed to provide installation document printing and reproduction support. Equipment located in these facilities is not real property, therefore is not included in this Facility Analysis Category.	SF	Means	7%
6900	Administrative Structure, Other Than Buildings	Miscellaneous administrative structures such as flagpoles, billboards, reviewing stands, and information stands.	EA	Means/USACE	7%
7120	Family Housing Trailer/Relocatable	A trailer or relocatable dwelling unit for a service member or for an authorized government civilian and his/her authorized dependents when accompanied by those dependents.	FA	M&S	0% No P&D for relocatable facilities
7231	Miscellaneous UPH Support Building	Buildings associated with unaccompanied personnel housing activities that are not included in another Facility Analysis Category.	SF	USACE/Means	6%
7233	Dining Support Facility	A separate facility that provides support to dining facility operations.	SF	AF/Means	8%
7312	Prison/Confinement Facility	A facility to house and secure service members during pre-trial confinement, post-trial confinement, and for the duration of sentences. Although not normally housed in the same facility, prisoners can include officers, enlisted personnel, and prisoners o	SF	Means	7%
7323	Greenhouse	A facility with glass walls and roof in which temperature and humidity can be regulated for the growing and protection of plants.	SF	Means	6%
7341	Bus Station	A facility for personnel to purchase tickets and await bus service. This does not include a simple enclosed bus stop, which is under Facility Analysis Category 7384.	SF	Means	7%
7344	Postal Facility	Facilities that house United States Postal Service operations.	SF	Means	9%

Report of the PRV Panel

FAC	FAC TITLE	FAC DESCRIPTION	UM	CONS SRCE	Design Amount to be Removed from Cost Factor
7345	Exchange Automobile Facility	Facilities which provide space for gasoline dispensing islands, minor automotive repair, and vehicle washing at facilities operated by the exchange system.	SF	Means	8%
7348	Car Wash Facility	A facility for the washing of privately owned vehicles.	SF	Means	7%
7418	Indoor Skating Rink	An indoor facility designed for year round ice and/or roller-skating.	SF	Means	7%
7441	Boathouse	A facility for the storage and maintenance of small boats and canoes.	SF	M&S	7%
7517	Recreational Pier	A platform constructed along or over a body of water, from which wildlife can be observed, recreational boats can be tied or launched, or fishing can take place.	EA	M&S	6%
7518	Marina	A facility for the berthing of pleasure craft.	EA	M&S	6%
7532	Outdoor Theater	An outdoor facility to accommodate cultural events such as plays, concerts, and festivals.	EA	Means	7%
7542	Miscellaneous Outdoor Recreation Facility	Outdoor recreational facilities not included in another Facility Analysis Category.	EA	FCPA/Means	7%
8122	Exterior Lighting Lines	Outdoor lighting lines such as streetlights and perimeter lights.	LF	M&S	8%
8231	Heat Gas Production Plant	A plant for the production of gas to be used directly in heat production.	MB	USACE/M&S	6%
8232	Heat Gas Storage	A plant for the storage of gas to be used directly in heat production.	EA	M&S	6%
8241	Heat Gas Distribution Line	A pipeline for the transmission of gas to be used directly in heat production.	LF	M&S	6%
8271	Chilled Water and Refrigerant Distribution Line	Pipelines for the transport of water or other coolants between a central cooling plant and the facilities to be cooled.	LF	M&S	6%
8311	Sewage Treatment	A facility for the treatment of sewage to remove contaminants to an acceptable degree.	KG	M&S	5%
8312	Industrial Waste Treatment	A facility for the treatment of industrial waste to remove contaminants to an acceptable degree.	KG	M&S	5%
8314	Septic Tank, Drain Field, and Lagoon	A facility to hold wastewater during the process of contaminants settling-out or the process of ground filtration.	KG	M&S	5%
8321	Sewer and Industrial Waste Line	A pipeline for the transport of sewage or industrial waste between the source, holding facilities, and/or treatment facilities.	LF	M&S	5%

Report of the PRV Panel

FAC	FAC TITLE	FAC DESCRIPTION	UM	CONS SRCE	Design Amount to be Removed from Cost Factor
8331	Refuse Collection and Recycling Facility	A facility for the collection of refuse or recyclable materials before they are processed for disposal or recycling.	EA	M&S	5%
8332	Incinerator	A facility to burn combustible wastes.	TH	M&S	5%
8411	Water Source, Potable	A source of water that is or can be treated to be safe for drinking.	KG	M&S	6%
8412	Water Treatment Facility	A facility for treating raw water in order to make it safe for drinking.	KG	M&S	7%
8431	Water Source, Fire Protection	A source of water that is intended for fire fighting.	GM	M&S	6%
8433	Water Impoundment, Fire Protection	An impoundment for the storage of water that is intended for fire fighting.	MG	M&S	6%
8441	Water Source, Non-Potable	A source of water that, in its natural condition, is not safe for drinking. Usually a well or stream.	KG	M&S	6%
8511	Road, Surfaced	A hard-surfaced road. The surface is usually either concrete or asphalt.	SY	Means	6%
8513	Vehicle Bridge	Bridges that support vehicle roadway crossing of a river, underpass, or similar gap.	SY	M&S	8%
8525	Pedestrian Bridge	Bridges that support walkway crossing of a river, underpass, or similar gap.	SY	M&S	8%
8612	Miscellaneous Railroad Facility	Facilities, other than track, normally associated with rail operations.	EA	M&S	7%
8712	Retaining Structure	A structure constructed to restrict or prevent the horizontal movement of earth or water.	LF	Means	6%
8921	Installation Gas Production Plant	Plants for the production of oxygen, nitride, carbon dioxide, compressed air and other non-heating gasses.	EA	USACE/M&S	6%
8925	Energy Management and Control System	A system to monitor and control the distribution of primary utility services throughout the installation. Included are sensors at various locations, a central control unit, and communication lines to connect the sensors to the control unit.	EA	M&S	6%
8926	Hazardous Waste Storage Or Disposal Facility	A facility used for the storage and/or disposal of hazardous wastes.	EA	M&S	6%
8929	Miscellaneous Utility Facility	Miscellaneous utility facilities and systems that are not included in another Facility Analysis Category. These facilities will be treated as having a Unit of Measure of each.	EA	M&S	5%
8931	Utility Tunnel	A walk-thru tunnel which contains various utility lines and which allows these lines to be accessed for maintenance.	LF	M&S	6%

Appendix D: Planning and Design Study to Support Design Costs for Health Affairs Facilities

Program Fiscal Year	Project Name/Location	DD Form 1391 Project #	Facility Code	Program Amount	Total P&D Cost	Total Project ECC	Total P&D % related to ECC	Primary Facility Cost	P&D % Primary Facility	Supporting Facility Cost	P&D % Supporting Facility
All Figures Expressed in \$(000)											
1996	Ambulatory Care Clinic Fort Irwin, CA	11173	5500	\$6,900	\$1,318	\$5,795	19.10%	\$4,590	16.92%	\$1,205	2.18%
1997	Branch Medical Clinic Camp Pendleton MCB, CA	35478	5500	\$3,300	\$561	\$2,491	22.52%	\$1,879	19.95%	\$612	2.57%
1997	Consolidated Troop Medical Clinic Fort Bragg, NC (Smoke Bomb Hill)	24873	5500	\$11,400	\$1,215	\$9,866	12.32%	\$7,634	10.91%	\$2,232	1.41%
1997	Hospital Replacement Lemoore NAS, CA	25845	5100	\$38,000	\$4,598	\$33,596	13.69%	\$30,201	12.12%	\$3,395	1.56%
1996-97	Ambulatory Health Care Center Maxwell AFB, AL	46743	5500	\$35,000	\$4,868	\$30,296	16.07%	\$24,486	14.23%	\$5,810	1.83%
1998	Consolidated Troop Med/Den Clinic Fort Campbell, KY	18639	5500	\$13,600	\$2,222	\$11,840	18.77%	\$9,543	16.62%	\$2,297	2.14%
1998	Dental Clinic Replacement Holloman AFB, NM	47351	5400	\$3,000	\$581	\$2,500	23.24%	\$2,110	20.59%	\$390	2.65%
1998	Ambulatory Health Care Center McGuire AFB, NJ	43816	5500	\$35,217	\$4,068	\$31,020	13.11%	\$26,800	11.62%	\$4,220	1.50%
1998	Medical/Dental Clinic Quantico, VA	25822	5500	\$19,000	\$1,999	\$14,769	13.54%	\$12,369	11.99%	\$2,400	1.55%
1999	Primary Care Clinic Fort Hood, TX	39001	5500	\$11,000	\$1,187	\$9,526	12.46%	\$8,187	11.04%	\$1,339	1.42%
1999	Medical Clinic Replacement McChord AFB,	35656	5500	\$20,000	\$2,347	\$17,661	13.29%	\$15,228	11.77%	\$2,433	1.52%

Report of the PRV Panel

Program Fiscal Year	Project Name/Location	DD Form 1391 Project #	Facility Code	Program Amount	Total P&D Cost	Total Project ECC	Total P&D % related to ECC	Primary Facility Cost	P&D % Primary Facility	Supporting Facility Cost	P&D % Supporting Facility
	WA										
2000	Ambulatory Healthcare Center Davis-Monthan AFB, AZ	25678	5500	\$10,000	\$1,225	\$8,943	13.70%	\$6,742	12.13%	\$2,201	1.56%
2000	WRM/BEE Facility Moody AFB, GA	48935	5306	\$1,250	\$391	\$1,124	34.79%	\$902	30.81%	\$222	3.97%
2000	Medical Logistics Facility Patrick AFB, FL	28403	5306	\$1,750	\$326	\$1,550	21.03%	\$1,125	18.63%	\$425	2.40%
2001	Medical Clinic Patrick AFB, FL	51267	5500	\$2,700	\$295	\$2,499	11.80%	\$1,958	10.46%	\$541	1.35%
	Summary			\$212,117	\$27,201	\$183,476	14.83%	\$153,754	13.13%	\$29,722	1.69%
Notes:											
1 The total ECC equals the Primary Facility cost PLUS Supporting Facility costs as provided by TMA											
2 Research was conducted on recently completed Corps of Engineers medical Facility designs to determine the amount of design effort related to accomplishing the Primary Facility versus the Supporting Facility design effort. The basis of the study was the total design drawing sheet count related to the Supporting Facility design sheet count. The percentage of the total design sheet count related to the Primary and Support Facility are shown below. These percentages have been utilized in the formulas above to calculate the P&D % related to the Primary and Supporting Facilities.											
Primary Facility factor in calculating the P&D percentage:				88.58%							
Supporting Facility factor in calculating the P&D percentage:				11.42%							

Appendix E: Table of FAC and CATCODE Mapping Changes

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Air Force	116661	Arming and Disarming Pads
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Air Force	116662	Pad, Dangerous Cargo, Load/Unload
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Air Force	116664	Power Check
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Air Force	116665	Power Check w/Suppressor
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Air Force	116666	Pad, Warmup, Holding
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Navy	11635	Arming&De-Arming Pad
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Navy	11650	Towway
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Navy	11655	Ordnance-Handling Pad
1164	Miscellaneous Airfield Pavement, Surfaced	1131	Aircraft Apron, Surfaced	Navy	11656	Combat Aircraft Ordnance Loading Area
1402	Air Defense Operations Building	1311	Communications Building	Air Force	141391	Radar Transmitter and Computer Building
1444	Miscellaneous Operations Support Building	1441	Photo/TV Production Building	Air Force	141747	WS-430B Photo Processing and Interpretation Facility Support Building
1431	Ship Operations Building	1444	Miscellaneous Operations Support Building	Navy	14325	Seal Team Building
1431	Ship Operations Building	1444	Miscellaneous Operations Support Building	Navy	14328	Underwater Construction Team Building
1403	Missile Operations Building	1452	Missile Guidance Facility	Air Force	141914	Missile Guidance Facility
1444	Miscellaneous Operations Support Building	1499	Miscellaneous Operations Support Facility	Army	14167	Cylinder Refilling Station/Facility
1444	Miscellaneous Operations Support Building	1499	Miscellaneous Operations Support Facility	Army	14170	Production Plant Support Structure
1511	Pier And Wharf	1511	Pier	Air Force	151153	Cargo Pier
1511	Pier And Wharf	1511	Pier	Air Force	151155	Liquid Fuel Unloading Pier
1511	Pier And Wharf	1511	Pier	Army	15110	Pier
1511	Pier And Wharf	1511	Pier	Navy	15110	Ammunition Pier
1511	Pier And Wharf	1511	Pier	Navy	15120	General-Purpose Berthing

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
						Pier
1511	Pier And Wharf	1511	Pier	Navy	15130	Fitting-Out Pier
1511	Pier And Wharf	1511	Pier	Navy	15140	Fueling Pier
1511	Pier And Wharf	1511	Pier	Navy	15150	Repair Pier
1511	Pier And Wharf	1511	Pier	Navy	15160	Supply Pier
1511	Pier And Wharf	1511	Pier	Navy	15170	Ordnance Container-Handling Pier
1511	Pier And Wharf	1511	Pier	Navy	15171	Degaussing Pier
1511	Pier And Wharf	1511	Pier	Navy	15180	Deperming Pier
1511	Pier And Wharf	1512	Wharf	Air Force	152111	Wharf
1511	Pier And Wharf	1512	Wharf	Army	15210	Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15210	Ammunition Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15220	General-Purpose Berthing Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15230	Fitting-Out Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15240	Fueling Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15250	Repair Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15260	Supply Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15270	Ordnance Container-Handling Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15271	Degaussing Wharf
1511	Pier And Wharf	1512	Wharf	Navy	15280	Deperming Wharf
1712	Applied Instruction Building	1711	General Purpose Instruction Building	Air Force	171628	Lauch Operations Training Facility
1712	Applied Instruction Building	1711	General Purpose Instruction Building	Air Force	171712	Target Intelligence Training
1794	Observation Tower/Bunker	1734	Observation Tower/Bunker	Air Force	149967	Observation Tower
1794	Observation Tower/Bunker	1734	Observation Tower/Bunker	Army	17971	Observation Tower
1794	Observation Tower/Bunker	1734	Observation Tower/Bunker	Army	17972	Observation Bunker
1794	Observation Tower/Bunker	1734	Observation Tower/Bunker	Navy	17935	Weapons Range Operations Tower
1771	Maneuver/Training Land, Light Forces	1741	Maneuver/Training Land, Light Forces	Army	17710	Maneuver/Training Area, Light Forces
1771	Maneuver/Training Land, Light Forces	1741	Maneuver/Training Land, Light Forces	Army	17711	Maneuver/Training Area, Amphibious Forces
1771	Maneuver/Training Land, Light Forces	1741	Maneuver/Training Land, Light Forces	Army	17998	Land Navigation Course
1771	Maneuver/Training Land, Light Forces	1741	Maneuver/Training Land, Light Forces	Army	17999	Field Training Area
1772	Maneuver/Training Land, Heavy Forces	1742	Maneuver/Training Land, Heavy Forces	Army	17720	Maneuver/Training Area, Heavy Forces
1773	Weapons Impact Area	1743	Weapons Impact Area	Army	17730	Impact Area Dudded
1773	Weapons Impact Area	1743	Weapons Impact	Army	17731	Impact Area Non-Dudded

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
			Area			
1774	Parachute Drop Zone	1744	Parachute Drop Zone	Army	17991	Personnel/Equipment Drop Zone
1775	Parade And Drill Field	1745	Parade And Drill Field	Army	17980	Parade/Drill Field
1775	Parade And Drill Field	1745	Parade And Drill Field	Navy	17960	Parade And Drill Field
1781	Small Arms Range	1750	General Purpose Small Arms Range	Air Force	179475	Small Arms Range System
1781	Small Arms Range	1750	General Purpose Small Arms Range	Army	17813	Automatic Rifle Range
1781	Small Arms Range	1750	General Purpose Small Arms Range	Army	17814	Non-Standard Small Arms Range
1781	Small Arms Range	1750	General Purpose Small Arms Range	Navy	17940	Small Arms Range -- Outdoor
1781	Small Arms Range	1751	Zero Range	Army	17801	Basic 10M-25M Firing Range (Zero)
1781	Small Arms Range	1752	Field Fire Range	Army	17802	Field Fire Range, Non-Automated
1781	Small Arms Range	1752	Field Fire Range	Army	17803	Automated Field Fire (AFF) Range
1781	Small Arms Range	1753	Record Fire Range	Army	17804	Record Fire Range Non-Automated
1781	Small Arms Range	1753	Record Fire Range	Army	17805	Automated Record Fire (ARF) Range
1781	Small Arms Range	1753	Record Fire Range	Army	17806	Modified Record Fire Range
1781	Small Arms Range	1754	Night Fire Range	Army	17807	Night Fire (Small Arms) Range
1781	Small Arms Range	1754	Night Fire Range	Army	17808	Automated Night Fire (Small Arms) Range
1781	Small Arms Range	1755	Known Distance Range	Army	17810	Known Distance (KD) Range
1781	Small Arms Range	1756	Sniper Range	Army	17811	Sniper Field-Fire Range
1781	Small Arms Range	1756	Sniper Range	Army	17812	Automated Sniper Field Fire Range
1781	Small Arms Range	1757	Pistol Range	Army	17821	Combat Pistol/MP Firearms Qualification Course
1781	Small Arms Range	1757	Pistol Range	Army	17822	Automated Combat Pistol/MP Firearms Qualification Course
1781	Small Arms Range	1757	Pistol Range	Army	17823	Submachinegun Range
1781	Small Arms Range	1758	Machinegun Range	Air Force	179476	Machine Gun Range
1781	Small Arms Range	1758	Machinegun Range	Army	17831	Machine Gun Transition Range
1781	Small Arms Range	1758	Machinegun Range	Army	17832	Machine Gun Field Fire Range
1781	Small Arms Range	1758	Machinegun	Army	17833	Automated Multipurpose

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
			Range			Machine Gun Range (MPMG)
1782	Direct Fire Range	1760	General Purpose Direct Fire Range	Army	17869	Combat Engineer Vehicle (CEV) Range
1782	Direct Fire Range	1761	Grenade Launcher Range	Air Force	179477	Grenade Launcher Range
1782	Direct Fire Range	1761	Grenade Launcher Range	Army	17884	Grenade Launcher Range
1782	Direct Fire Range	1762	Grenade Machinegun Range	Army	17834	40Mm (Grenade) Machine Gun Qualification Range
1782	Direct Fire Range	1763	Light Antiarmor Weapon Range	Army	17841	Light Antiarmor Weapons (LAW/AT-4) Range Subcaliber
1782	Direct Fire Range	1763	Light Antiarmor Weapon Range	Army	17842	Light Antiarmor Weapons (LAW/AT-4) Range Live
1782	Direct Fire Range	1763	Light Antiarmor Weapon Range	Army	17843	Recoilless Rifle Range
1782	Direct Fire Range	1764	Heavy Antiarmor Weapon Range	Army	17844	Antiarmor Tracking And Live-Fire Range
1782	Direct Fire Range	1764	Heavy Antiarmor Weapon Range	Army	17845	Automated Antiarmor Tracking And Live-Fire Range
1782	Direct Fire Range	1765	Artillery Direct Fire Range	Army	17855	Field Artillery Direct Fire Range
1782	Direct Fire Range	1766	Tank Stationary Gunnery Range	Army	17863	Tank/Fighting Vehicle Stationary Gunnery Range
1783	Indirect Fire Range	1767	Indirect Fire Range	Army	17852	Mortar Range
1783	Indirect Fire Range	1767	Indirect Fire Range	Army	17856	Field Artillery Indirect Fire Range
1783	Indirect Fire Range	1767	Indirect Fire Range	Army	17857	Multiple Launch Rocket System Range
1783	Indirect Fire Range	1767	Indirect Fire Range	Navy	17930	Surface-Projectile Range
1784	Scaled Range	1768	Scaled Indirect Fire Range	Army	17851	Mortar Scaled Range
1784	Scaled Range	1768	Scaled Indirect Fire Range	Army	17854	Field Artillery Scaled Range
1784	Scaled Range	1769	Scaled Gunnery Range	Army	17861	Scaled Gunnery Range (1:30 And 1:60)
1784	Scaled Range	1769	Scaled Gunnery Range	Army	17862	Scaled Gunnery Range (1:5 And 1:10)
1785	Tank/Fighting Vehicle Training Range	1771	Armor Vehicle Crew Training Range	Army	17864	Multipurpose Training Range (MPTR)
1785	Tank/Fighting Vehicle Training Range	1771	Armor Vehicle Crew Training Range	Army	17865	Automated Multipurpose Training Range (MPTR)
1785	Tank/Fighting Vehicle Training Range	1772	Armor Vehicle Unit Training Range	Army	17866	Tank/Fighting Vehicle Platoon Battle Run (Table XI And XII)

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
1785	Tank/Fighting Vehicle Training Range	1772	Armor Vehicle Unit Training Range	Army	17867	Tank/Fighting Vehicle Multipurpose Range Complex, Light, Automated
1785	Tank/Fighting Vehicle Training Range	1772	Armor Vehicle Unit Training Range	Army	17868	Tank/Fighting Vehicle Multipurpose Range Complex, Heavy, Automated
1787	Infantry Unit Training Range	1773	Fire and Movement Range	Army	17892	Fire And Movement Range
1787	Infantry Unit Training Range	1774	Squad Defensive Range	Army	17893	Squad Defense Range
1787	Infantry Unit Training Range	1775	Infantry Battle Course	Army	17894	Infantry Squad Battle Course
1787	Infantry Unit Training Range	1775	Infantry Battle Course	Army	17895	Automated Infantry Squad Battle Course
1787	Infantry Unit Training Range	1775	Infantry Battle Course	Army	17896	Infantry Platoon Battle Course
1787	Infantry Unit Training Range	1775	Infantry Battle Course	Army	17897	Automated Infantry Platoon Battle Course
1788	Urban Combat Training Range	1776	Urban Combat Training Range	Army	17898	MOUT Assault Course (MAC)
1797	Light Demolition And Flame Training Range	1781	Live Hand Grenade Range	Army	17883	Live Hand Grenade Range
1797	Light Demolition And Flame Training Range	1782	Engineer Qualification Range	Army	17888	Engineer Qualification Range, Non-Standardized
1797	Light Demolition And Flame Training Range	1782	Engineer Qualification Range	Army	17889	Engineer Qualification Range, Automated/Standardized
1797	Light Demolition And Flame Training Range	1783	Light Demolition And Flame Training Range	Army	17885	Light Demolition Range
1797	Light Demolition And Flame Training Range	1783	Light Demolition And Flame Training Range	Army	17887	Flame Operations Range
1790	Miscellaneous Training Facility	1797	Hand Grenade Range, Non-Firing	Army	17881	Hand Grenade Accuracy Course (Non-Firing)
1790	Miscellaneous Training Facility	1797	Hand Grenade Range, Non-Firing	Army	17882	Hand Grenade Qualification Course (Non-Firing)
1786	Air Defense Range	1794	Air Defense Range	Army	17871	Air Defense Gunnery Range
1786	Air Defense Range	1794	Air Defense Range	Army	17872	Air Defense Missile Firing Range
2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar	Army	21113	Aircraft Parts Storage
2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance	Army	21116	Hangar Shop Space

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
			Hangar			
2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar	Army	21117	Avionics Maintenance Shop, Installation
2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar	Army	21120	Aircraft Component Maintenance Shop
2112	Aircraft Maintenance Shop	2111	Aircraft Maintenance Hangar	Army	21130	Aircraft Paint Shop
2111	Aircraft Maintenance Hangar	2112	Aircraft Maintenance Shop	Air Force	211177	Small Aircraft Maintenance Dock
2112	Aircraft Maintenance Shop	2116	Aircraft Maintenance Shop, Depot	Air Force	211157	Shop, Jet Engine Inspection and Maintenance
2121	Missile Maintenance/Assembly Building	2141	Vehicle Maintenance Shop	Army	21416	Missile Maintenance Building
2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop	Army	21845	Administration And Shop Control, DOL/DPW/IMMA/IMMD
2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop	Army	21870	Maintenance Storage, DOL/DPW/IMMA/IMMD
2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop	Army	21882	General Item Repair Shop, DOL/DPW/IMMA/IMMD
2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop	Army	21885	Maintenance Shop, General Purpose
2182	Installation Support Equipment Maintenance Shop	2181	Installation Support Vehicle Maintenance Shop	Army	21887	Compact Item Repair Shop, DOL/DPW/IMMA/IMMD
2181	Installation Support Vehicle Maintenance Shop	2182	Installation Support Equipment Maintenance Shop	Army	21850	Battery Shop
3191	Miscellaneous Item And Equipment RDT&E Facility	3101	RDT&E Laboratory	Air Force	319442	Equipment Research Engineering
4111	Bulk Liquid Fuel Storage	4121	Bulk Liquid Storage, Other Than Fuel	Air Force	411138	Storage Solvents
1241	Operating Fuel Storage	4122	Liquid Oxygen Storage	Air Force	141913	Special Fuel Facility
4421	Covered Storage Building, Installation	4411	Covered Storage Building, Depot	Navy	44113	MARCOR LOGSUPBASE Warehouse
4421	Covered Storage Building, Installation	4411	Covered Storage Building, Depot	Navy	44114	MARCOR SASSY Warehouse

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
2141	Vehicle Maintenance Shop	4425	Vehicle Storage, Covered	Air Force	214428	Vehicle Operations Parking Shed
4421	Covered Storage Building, Installation	5306	Medical Warehouse	Air Force	442515	Medical Storage For War Readiness Material
5100	Medical Center/Hospital	5500	Dispensary And Clinic	Air Force	510411	Air Force Clinic
1444	Miscellaneous Operations Support Building	7342	Laundry/Dry Cleaning Facility	Army	14175	Industrial Laundry
1444	Miscellaneous Operations Support Building	7382	Locker Room	Army	14178	Employee Changing Building
7442	Transient And Recreational Lodging	7441	Transient Lodging	Air Force	740443	Transient Lodging Facility, Appropriated
7442	Transient And Recreational Lodging	7441	Transient Lodging	Air Force	740455	Transient Family Aerial Port
7442	Transient And Recreational Lodging	7441	Transient Lodging	Air Force	740457	Transient Lodging Facility, NA
7442	Transient And Recreational Lodging	7441	Transient Lodging	Army	53080	Fisher House
7212	Enlisted Unaccompanied Personnel Housing, Transient	7441	Transient Lodging	Army	72120	Transient Unaccompanied Personnel Housing
7241	Officer UPH, Transient	7441	Transient Lodging	Army	72411	Unaccompanied Officers Quarters, Military Transient
7442	Transient And Recreational Lodging	7441	Transient Lodging	Army	74032	Guest House
7442	Transient And Recreational Lodging	7441	Transient Lodging	Army	72010	Transient Housing
7442	Transient And Recreational Lodging	7441	Transient Lodging	Navy	72151	Transient Personnel Unit Barracks E1-E4
7442	Transient And Recreational Lodging	7441	Transient Lodging	Navy	72152	Transient Personnel Unit Barracks E5-E6
7442	Transient And Recreational Lodging	7441	Transient Lodging	Navy	74020	Temporary Lodging
7442	Transient And Recreational Lodging	7441	Transient Lodging	Navy	74022	Transient Housing
7442	Transient And Recreational Lodging	7442	Recreational Lodging	Air Force	740666	Recreation Site Lodging
7442	Transient And Recreational Lodging	7442	Recreational Lodging	Army	74036	Recreational Billets
7442	Transient And Recreational Lodging	7442	Recreational Lodging	Navy	74081	MWR Operated Rental Cabins
7441	Boathouse	7445	Boathouse	Army	74009	Boat House
7441	Boathouse	7445	Boathouse	Navy	74087	Boathouse
7445	Miscellaneous MWR Facility	7446	Miscellaneous MWR Facility	Army	74034	Community/Conference Center
7445	Miscellaneous MWR	7446	Miscellaneous	Army	74035	Conservation Building

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
	Facility		MWR Facility			
7445	Miscellaneous MWR Facility	7446	Miscellaneous MWR Facility	Army	74080	Self Storage Rental Facility
7445	Miscellaneous MWR Facility	7446	Miscellaneous MWR Facility	Navy	74021	Visitors-Reception-Center-At Recruit Trng Ctr Only
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Air Force	740672	MWR Supply and NAF Central Storage
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Air Force	750819	Swimming Pool Water Treatment
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Army	74065	Recreational Equipment Checkout
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Army	74075	Recreational Support Building
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Army	74089	Outdoor Pool Service Building
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74033	Information, Ticket And Tours (Pleasure/Unofficial Travel)
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74037	Special-Services Issue&Office
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74047	Recreation Information, Tickets and Tour Office
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74048	Contracted Leisure Travel Agency
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74052	Gun-Skeet-Trap Building
7446	Miscellaneous MWR Support Facility	7447	Miscellaneous MWR Support Facility	Navy	74082	Public Telephone Facility
8411	Water Source, Potable	8414	Water Well, Potable	Air Force	841166	Water Well
8411	Water Source, Potable	8414	Water Well, Potable	Army	84130	Water Well, Potable
8411	Water Source, Potable	8414	Water Well, Potable	Navy	84150	Wells Potable-Water
8414	Reservoir, Potable Water	8443	Reservoir, Water	Air Force	841425	Water Storage Reservoir
8414	Reservoir, Potable Water	8443	Reservoir, Water	Army	84620	Reservoir, Potable
8443	Reservoir, Non-Potable Water	8443	Reservoir, Water	Army	84720	Reservoir, Nonpotable

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
8414	Reservoir, Potable Water	8443	Reservoir, Water	Navy	84151	Reservoir Potable-Water
8443	Reservoir, Non-Potable Water	8443	Reservoir, Water	Navy	84450	Nonpotable-Water Reservoir
8923	Dam	8713	Dam and Dike	Air Force	841423	Water Storage Dam
8712	Retaining Structure	8713	Dam and Dike	Army	87140	Dikes
8923	Dam	8713	Dam and Dike	Army	89270	Dam
8712	Retaining Structure	8713	Dam and Dike	Navy	87125	Dyke/Dam
8929	Miscellaneous Utility Facilities	8923	Vehicle Scale	Air Force	890197	Weight Scale
8929	Miscellaneous Utility Facilities	8923	Vehicle Scale	Army	14971	Vehicle Scales
8929	Miscellaneous Utility Facilities	8923	Vehicle Scale	Navy	89056	Weighing Facility
8929	Miscellaneous Utility Facilities	8927	Utility Vault	Air Force	136668	Airfield Light Vault
8929	Miscellaneous Utility Facilities	8927	Utility Vault	Air Force	890187	Utility Vault
8929	Miscellaneous Utility Facilities	8927	Utility Vault	Army	13252	Cable Vault
8929	Miscellaneous Utility Facilities	8928	Loading Platform/Ramp	Air Force	890156	Load/Unloading Pit
8929	Miscellaneous Utility Facilities	8928	Loading Platform/Ramp	Air Force	890158	Load/Unloading Platform
8929	Miscellaneous Utility Facilities	8928	Loading Platform/Ramp	Army	14970	Loading/Unloading Docks And Ramps
8929	Miscellaneous Utility Facilities	8928	Loading Platform/Ramp	Navy	85115	Load/Unload Ramp
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880211	Closed Head Automatic Sprinkler
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880212	Open Head Deluge System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880216	Pre-action Sprinkler System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880217	Aqueous Film Forming Foam Pre-action Sprinkler System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880218	High Expansion Foam System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Air Force	880221	Automatic Fire Detection System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Air Force	880222	Manual Fire Alarm System, Interior
8801	Fire And Other Alarm	8999	Miscellaneous	Air Force	880223	Manual Fire Alarm

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
	System		Component of Other Facility			System, Exterior
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880231	Carbon Dioxide Fire System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880232	Foam Fire System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880233	Other Fire System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880234	Halon 1301 Fire System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880235	Dry Chemical System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Air Force	880236	Foam System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Army	88010	Fire Alarm System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Army	88020	Watch Reporting System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Army	88030	Air Raid Alarm System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Army	88045	Radiation Sensing Device
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Army	88110	Automatic Water Sprinkler System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Army	88120	Special Fire Extinguishing System
8811	Fire Extinguishing System	8999	Miscellaneous Component of Other Facility	Army	88130	Standpipe System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Navy	88010	Fire-Alarm System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Navy	88020	Watch-Reporting System
8801	Fire And Other Alarm System	8999	Miscellaneous Component of Other Facility	Navy	88030	Air-Raid-Alarm System
8801	Fire And Other Alarm	8999	Miscellaneous	Navy	88040	Air-Crash/Air-Alert

Report of the PRV Panel

OLD FAC	OLD FACILITY ANALYSIS CATEGORY TITLE	NEW FAC	NEW FACILITY ANALYSIS CATEGORY TITLE	SERVICE	CATCODE	LONG NAME
	System		Component of Other Facility			Alarm

Legend:

Existing FAC
Renamed
New FAC
CATCODE
Moved to Other
Existing FAC
Existing FAC
Assigned New Number
New/Renamed Service
CATCODE
Delete FAC

Appendix F: Actions from the Air Force Category Code and Cost Factor Review

The following reflects the actions resulting from the review of Air Force CATCODES and cost factors.

Item	Action	Agency	Status
1	Move AF CATCODE 871183 (Storm Drainage Disposal) from FAC 8711 (Storm Drainage - i.e. ditches) to FAC 8321 (Sewer And Industrial Waste Lines – i.e. pipes).	R&K	Complete in DoD Facilities Cost Factor Handbook (CFHB) Version 5
	Associated with this action, evaluate if a separate CATCODE should be created for storm drainage ditches.	Air Force	Pending
2	Evaluate costs for underground and overhead power lines to determine if the single Electrical Power Distribution Line FAC (8121) should be separated into underground and overhead FACs. Associated with this action, evaluate the proportion of underground and overhead lines that are used for the composite FAC 8121 cost factors.	R&K	Complete in CFHB Version 5
3	Check the draft DoDI 4165.14 to be sure that there is guidance that central utility plants should be reported as separate records (i.e. should not be reported as real property installed equipment)	R&K	Complete prior to final staffing of DoDI
	Associated with this action, develop guidance on recording central utility plants as separate records instead of installed equipment.	Air Force	Pending
4	Determine the best time for utility UMs to be revised to better match with common industry standards. This results from the recommendation to change specific DoD utility UMs (e.g. KG, KV, MB, MG) to conform to more commonly used commercial terminology.	R&K	Pending
5	Evaluate various FAC upper limits and set-to values to determine if revisions are required	R&K	Complete for FSM 5.0
6	Evaluate proposal of consolidating 11 current RDT&E building FACs into just 2 FACs; one FAC for generic RDT&E buildings and another for controlled environment RDT&E buildings (i.e. RDT&E buildings with special clean rooms, filtration/ventilation systems, etc).	R&K	Pending
7	Change the cost factors for most pavement FACs (runways, aprons, roads, parking) to reflect a 1/8th concrete – 7/8th asphalt proportion based on AF pavement material data.	R&K	Complete in CFHB Version 5
8	Change the definition of FAC 8442 (Water Storage, Non-Potable) to state that these are “tanks” rather than generic “facilities”.	R&K	Complete in CFHB Version 5
9	Provide specific cost data for AF CATCODE 149512 (Missile Launch Facility)	Air Force	Complete in CFHB Version 5

Report of the PRV Panel

Item	Action	Agency	Status
10	Review various RPI records that exceed FAC upper limits and correct records or validate facility sizes. Records not corrected or validated before FSM v5.0 will have set-to values applied.	Air Force	Pending
11	Evaluate specific AF CATCODES to determine if separate FACs should be created (i.e. CC 318614 and 390531)	Air Force	Pending
12	Review RPI for systemic assignment of incorrect CATCODES (e.g. utility buildings entered as utility vaults).	Air Force	Pending
13	Research typical design features of security fence to determine differences from other fence.	Air Force	Pending
	Associated with this action, evaluate if there is enough cost difference to justify creating a separate security fence FAC.	R&K	Pending
14	Provide back-up data on costs of Hardened Aircraft Shelters. FAC cost factors have already been changed based on AF input, but back-up details are necessary for cost factor audit purposes.	Air Force	Pending
15	Research the proportion of underground communication lines that are installed within conduits	Air Force	Pending
	Associated with this action, evaluate if the FAC cost factors should be changed or if an additional FAC should be created.	R&K	Pending